In the Claims

For the convenience of the Examiner, all pending claims are set forth below, whether or not an amendment is made.

1. (Previously Presented) A method for determining a frequency offset estimate, comprising:

receiving a signal at an offset estimator, the signal conveying a plurality of symbols in a plurality of packets, a packet having a preamble comprising plurality of preamble symbols;

zero-padding the received signal in a time domain of the received signal with a plurality of zero-valued samples to yield a zero-padded signal, the number of the zero-valued samples related to the number of a plurality of Fourier transform bins and the number of the preamble symbols;

taking a Fourier transform of the zero-padded signal using the Fourier transform bins to yield a transformed signal;

establishing a maximum power of the transformed signal; and

generating a frequency offset estimate based on the maximum power of the transformed signal.

2. (Original) The method of Claim 1, wherein generating the frequency offset estimate based on the maximum power of the transformed signal further comprises generating the frequency offset estimate as being substantially equivalent to the maximum power of the transformed signal.

3. (Previously Presented) The method of Claim 1, further comprising converting the received signal to a baseband frequency using the preamble, the preamble comprising less than ten percent of the packet.

4. (Original) The method of Claim 1, wherein establishing the maximum power of the transformed signal further comprises locating a Fourier transform bin corresponding to the maximum power.

5. (Original) The method of Claim 1, further comprising determining a phase offset estimate from a fast Fourier transform bin corresponding to the maximum power.

6. (Original) The method of Claim 1, further comprising:

generating a decoded signal from the received signal;

comparing the received signal with the decoded signal; and

determining a residual error estimate in accordance with the comparison.

7. (Original) The method of Claim 1, further comprising adjusting the received signal in accordance with at least one of the frequency offset estimate, a phase offset estimate, and a residual error estimate.

8. (Original) The method of Claim 1, further comprising:

adjusting the received signal in accordance with at least one of the frequency offset estimate, a phase offset estimate, and a residual error estimate to yield a corrected signal; and

decoding the corrected signal to yield the plurality of symbols.

9. (Original) The method of Claim 1, further comprising:

receiving the frequency offset estimate at a numerically controlled oscillator;

receiving a phase offset estimate at the numerically controlled oscillator;

receiving a residual error correction at the numerically controlled oscillator; and

adjusting the received signal in accordance with the frequency offset estimate, the phase offset estimate, and the residual error correction.

10. (Previously Presented) A system for determining a frequency offset estimate, comprising:

an input operable to receive a signal at an offset estimator, the signal conveying a plurality of symbols in a plurality of packets, a packet having a preamble comprising plurality of preamble symbols;

a transformer coupled to the input and operable to:

zero-pad the received signal in a time domain of the received signal with a plurality of zero-valued samples to yield a zero-padded signal, the number of the zero-valued samples related to the number of a plurality of Fourier transform bins and the number of the preamble symbols; and

take a Fourier transform of the zero-padded signal using the Fourier transform bins to yield a transformed signal; and

a frequency offset estimator coupled to the transformer and operable to:

establish a maximum power of the transformed signal; and

generate a frequency offset estimate based on the maximum power of the transformed signal.

11. (Original) The system of Claim 10, the frequency offset estimator further operable to generate the frequency offset estimate based on the maximum power of the transformed signal by generating the frequency offset estimate as being substantially equivalent to the maximum power of the transformed signal.

12. (Previously Presented) The system of Claim 10, further comprising one or more pre-processing modules operable to convert the received signal to a baseband frequency using the preamble, the preamble comprising less than ten percent of the packet.

13. (Original) The system of Claim 10, the frequency offset estimator further operable to establish the maximum power of the transformed signal by locating a Fourier transform bin corresponding to the maximum power.

14. (Original) The system of Claim 10, further comprising determining a phase offset estimate from a fast Fourier transform bin corresponding to the maximum power.

15. (Original) The system of Claim 10, further comprising one or more error correction modules operable to:

generate a decoded signal from the received signal;

compare the received signal with the decoded signal; and

determine a residual error estimate in accordance with the comparison.

16. (Original) The system of Claim 10, further comprising one or more error correction modules operable to adjust the received signal in accordance with at least one of the frequency offset estimate, a phase offset estimate, and a residual error estimate.

17. (Original) The system of Claim 10, further comprising one or more error correction modules operable to:

adjust the received signal in accordance with at least one of the frequency offset estimate, a phase offset estimate, and a residual error estimate to yield a corrected signal; and

decode the corrected signal to yield the plurality of symbols.

18. (Original) The system of Claim 10, further comprising a numerically controlled oscillator operable to:

receive the frequency offset estimate;

receive a phase offset estimate;

receive a residual error correction; and

adjust the received signal in accordance with the frequency offset estimate, the phase offset estimate, and the residual error correction.

19. (Previously Presented) A system for determining a frequency offset estimate, comprising:

means for receiving a signal at an offset estimator, the signal conveying a plurality of symbols in a plurality of packets, a packet having a preamble comprising plurality of preamble symbols;

means for zero-padding the received signal in a time domain of the received signal with a plurality of zero-valued samples to yield a zero-padded signal, the number of the zero-valued samples related to the number of a plurality of Fourier transform bins and the number of the preamble symbols;

means for taking a Fourier transform of the zero-padded signal using the Fourier transform bins to yield a transformed signal;

means for establishing a maximum power of the transformed signal; and

means for generating a frequency offset estimate based on the maximum power of the transformed signal.

20. (Previously Presented) A method for determining a frequency offset estimate, comprising:

receiving a signal at an offset estimator, the signal conveying a plurality of symbols in a plurality of packets, a packet having a preamble comprising plurality of preamble symbols;

converting the received signal to a baseband frequency using the preamble, the preamble comprising less than ten percent of the packet size of the packet;

zero-padding the received signal in a time domain of the received signal with a plurality of zero-valued samples to yield a zero-padded signal, the number of the zero-valued samples related to the number of a plurality of Fourier transform bins and the number of the preamble symbols;

taking a Fourier transform of the zero-padded signal using the Fourier transform bins to yield a transformed signal;

establishing a maximum power of the transformed signal by locating a Fourier transform bin corresponding to the maximum power;

generating a frequency offset estimate from the maximum power of the transformed signal;

generating a phase offset estimate from the maximum power of the transformed signal;

generating a decoded signal from the received signal;

comparing the received signal with the decoded signal; and

determining a residual error estimate in accordance with the comparison;

receiving the frequency offset estimate at a numerically controlled oscillator;

receiving the phase offset estimate at the numerically controlled oscillator;

receiving the residual error correction at the numerically controlled oscillator; and

adjusting the received signal in accordance with the frequency offset estimate, the phase offset estimate, and the residual error correction; and

decoding the corrected signal to yield the plurality of symbols.